

USSN: 10/708,963
Our Reference: 98108902(US)USC1 DSCO

U.S. Patent No. (Not Yet Known)
Status: Pending

LISTING OF CLAIMS:

Claim 1. (Original) An apparatus for conducting a high speed search on an optical medium having a surface on which information is recorded comprising:

a photodetector unit configured to receive a reflected component of a first light spot to form a first electrical signal and a reflected component of a second light spot to form a second electrical signal;

digital shaping circuitry configured to respectively convert the first electrical signal and the second electrical signal into a first digital signal and a second digital signal; and

a detector configured to receive the first digital signal and the second digital signal to produce from the first digital signal and the second digital signal an up-count signal and a down-count signal indicating directions that the light spots traverse.

Claim 2. (Original) The apparatus of claim 1 wherein the surface includes a plurality of tracks.

Claim 3. (Original) The apparatus of claim 2 wherein one of the first light spot and the second light spot is directed by an optical system on to the optical medium.

Claim 4. (Original) The apparatus of claim 3 wherein the up-count signal indicates the first light spot is traversing the tracks in a first direction and the down-count signal indicates the second light spot is traversing the tracks in a second direction.

Claim 5. (Original) The apparatus of claim 4, further comprising:
a counter configured to count, during the search, the up-count signal and the down-count signal to determine a number of tracks traversed by the light spots.

Claim 6. (Original) The apparatus of claim 4, further comprising:

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a microcomputer coupled to the quadrature detector and configured to count, during the search, the up-count signal and the down-count signal to identify a number of tracks traversed by the light spots.

Claim 7. (Original) The apparatus of claim 4, wherein:
the first light spot and the second light spot are arranged on the tracks in a quadrature relationship to each other.

Claim 8. (Original) The apparatus of claim 4, wherein:
the first electrical signal and the second electrical signal are arranged on the tracks in a quadrature relationship to each other.

Claim 9. (Original) The apparatus of claim 4, wherein:
the first digital signal and the second digital signal are arranged in a quadrature relationship to each other.

Claim 10. (Original) The apparatus of claim 9, wherein:
the quadrature relationship is characterized by about a 90-degree shift between the first digital signal and the second digital signal.

Claim 11. (Original) The apparatus of claim 9, wherein:
the quadrature relationship is characterized by a tolerance relationship between the first digital signal and the second digital signal, the tolerance relationship being determined so that the first digital signal and the second digital signal vary within a specified number of degrees of 90 degrees as permitted by a tolerance parameter of the quadrature detector.

Claim 12. (Original) The apparatus of claim 9, wherein:

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the quadrature relationship is characterized by the first digital signal leading the second digital signal in time.

Claim 13. (Original) A method for conducting a high speed search, comprising:

directing a first and a second light spots onto an optical medium, the light spots traversing across the surface of the optical medium;

receiving a reflected component of the first light spot to form a first electrical signal and a reflected component of the second light spot to form a second electrical signal;

shaping the first electrical signal and the second electrical signal into a first digital signal and a second digital signal; and

determining from the first digital signal and the second digital signal an up-count signal and a down-count signal.

Claim 14. (Original) The method of claim 13 further comprising directing the first and second light spots to form a quadrature relationship to each other.

Claim 15. (Original) The method of claim 13 wherein the surface comprises a plurality of tracks.

Claim 16. (Original) The method of claim 15 wherein the first and second signals respectively indicate the light spots traversing the tracks in a first and a second direction.

Claim 17. (Original) The method of claim 16, further comprising:
counting the up-count signal and the down-count signal to estimate a number of tracks traversed by the light spots.

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PATENT
Art Unit: 2655

Claim 18. (Original) A method for conducting a high-speed search, comprising:
determining a target track over which an optical system is to be positioned;
measuring a current track over which the optical system is currently positioned;
determining a distance (d) between the target track and the current track;
moving in an open loop mode the optical system at one of a plurality of rates of motion until the optical system rests, to each one of the plurality of rates of motion there being assigned one interval from a plurality of disjoint intervals, wherein if d falls within one of the disjoint intervals the optical system is moved the corresponding rate of motion;
and
measuring the current track to recalculate d.

Claim 19. (Original) The method of claim 18 further comprising repeating the moving step until d is sufficiently small.

Claim 20. (Original) The method of claim 18 further comprising moving the optical head one track at a time in a closed loop mode until the target track is reached.